

**ENHANCED ELECTRON FIELD EMISSION SPINDT TIP AND METHOD FOR
FABRICATING ENHANCED SPINDT TIPS**

ABSTRACT OF THE DISCLOSURE

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An enhanced Spindt-tip field emitter tip and a method for producing the enhanced Spindt-tip field emitter. A thin-film resistive heating element is positioned below the field emitter tip to allow for resistive heating of the tip in order to sharpen the tip and to remove adsorbed contaminants from the surface of the tip. Metal layers of the enhanced field emission device are separated by relatively thick dielectric bilayers, with the metal layers having increased thickness in the proximity of a cylindrical well in which the field emitter tip is deposited. Dielectric material is pulled back from the cylindrical aperture into which the field emitter tip is deposited in order to decrease buildup of conductive contaminants and the possibility of short circuits between metallic layers.

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